

WHAT IS CLAIMED IS:

1. A cleaning apparatus for a magnetic write/read head of a tape drive comprising:

a cleaning brush; and

means for guiding the cleaning brush in the same direction as grooves in the write/read head.

2. A tape drive head cleaner for a tape drive having a magnetic read/write head, the head cleaner comprising:

a brush carriage;

a brush mounted on the brush carriage; and

a brush carriage movement mechanism coupled to the brush carriage for moving the brush carriage to cause the brush to sweep along the length of the read/write head.

3. The head cleaner of claim 2, wherein the read/write head has longitudinal grooves, and the brush has bristles, and wherein the brush carriage movement mechanism is configured to move the brush carriage so as to cause the brush bristles to enter the grooves and move the brush in the direction of the grooves.

4. The head cleaner of claim 3, further comprising an actuator coupled to the read/write head, the actuator controllable to move the read/write head during movement of the brush carriage.

5. The head cleaner of claim 4, wherein the brush carriage movement mechanism comprises a lead screw and a half nut on the brush carriage, the half nut engaging the lead screw such that rotation of the lead screw drives the brush carriage vertically along the lead screw.

6. The head cleaner of claim 5, wherein the brush carriage movement mechanism further comprises a stepper motor coupled to the lead screw to control the rotation of the lead screw.

7. The head cleaner of claim 6, further comprising a limit switch fixed in a position to detect a reference position of the brush carriage.

8. The head cleaner of claim 7, further comprising a controller to control the stepper motor to control movement of the brush carriage in relation to the reference position and cause the brush to sweep the entire length of the read/write head.

9. The head cleaner of claim 8, wherein the controller further controls the stepper motor to control movement of the brush carriage to cause the brush to sweep past a bottom edge of the read/write head.

10. The head cleaner of claim 9, wherein the brush carriage movement mechanism further comprises guide shafts on which the brush carriage is mounted so as to be guided during movement of the brush carriage in response to the rotation of the lead screw.

11. A tape drive comprising:

a write/read head having grooves extending along a first axis;

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a brush; and

a brush carriage on which the brush is mounted, the brush carriage controllably movable to sweep the brush on the write/read head along the first axis.

12. The tape drive of claim 11, further comprising a write/read head actuator configured to move the write/read head on the first axis.

13. The tape drive of claim 12, wherein the write/read head actuator is further configured to move the write/read head along the first axis simultaneously with the sweep of the brush on the write/read head.

14. The tape drive of claim 13, further comprising a lead screw and a half nut on the brush carriage and carried by the lead screw rotation of the lead screw during the brush carriage along the lead screw.

15. The tape drive of claim 14, wherein a longitudinal axis of the lead screw is parallel to the first axis such that the brush carriage is moved along a second axis parallel to the first axis and the brush is moved along the first axis.

16. The tape drive of claim 15, further comprising a stepper motor and a gear train operatively coupled between the stepper motor and the lead screw, with the stepper motor operable to rotate the lead screw to move the brush up and down in steps along the first axis.

17. The tape drive of claim 16, further comprising a limit switch operable to sense movement of the brush to a reference position.

18. The tape drive of claim 17, wherein the stepper motor is controllable to move the brush from the reference position above a first axial end of the write/read head to a position below a second axial end of the write/read head.

19. The tape drive of claim 18, wherein the brush is arranged on the brush carriage such that bristles of the brush enter the grooves of the write/read head when the brush sweeps on the write/read head and exit the grooves when the brush is moved to the reference position and to the position below the second axial end of the write/read head.

20. The tape drive of claim 19, further comprising guide shafts extending parallel to the first axis, the brush carriage slidably mounted on the guide shafts to constrain movement of the brush carriage along the second axis.